

CLAIMS

What is claimed is:

1. A device for metering a microfluidic plug of fluid from a larger fluidic volume, the device comprising:

a trunk channel having a fluidic inlet and a fluidic outlet; and

a microfluidic branch channel in direct, independent fluid communication with the trunk channel, the branch channel having a fluidic impedance region;

wherein the trunk channel, branch channel, fluidic inlet, fluidic outlet, and fluidic impedance are arranged to permit a first fluid to be supplied through the trunk channel to fill the branch channel to the fluidic impedance region, and thereafter to permit the fluidic contents of the trunk channel to be flushed through the fluidic outlet while the branch channel remains substantially filled.
2. The device of claim 1, further comprising a plurality of sub-branch channels in fluid communication with the microfluidic branch channel.
3. The device of claim 1, further comprising a plurality of microfluidic branch channels, each in direct, independent fluid communication with the trunk channel.
4. The device of claim 1, wherein the microfluidic branch channel has a volume of less than about two microliters.
5. The device of claim 1, wherein the microfluidic branch channel has a volume of less than about one microliter.
6. The device of claim 1, wherein the microfluidic branch channel has a volume of less than about five hundred nanoliters.
7. The device of claim 1, wherein the fluidic impedance region comprises a passive valve.
8. The device of claim 1, wherein the branch channel has an associated gas-permeable vent.
9. The device of claim 1, wherein the trunk channel is a microfluidic channel.

10. The device of claim 1, further comprising multiple microfluidic branch channels each in independent, direct fluid communication with the trunk channel.
11. The device of claim 1, wherein the device is fabricated with a plurality of device layers.
12. The device of claim 1, wherein any device layer of the plurality of device layers is fabricated with a polymeric material.